

**CLAIMS**

1. In a Java computing environment, a Java object representation  
suitable for use by a Java virtual machine, said a Java object representation  
5 comprising:

a first reference to an internal class representation of said Java  
object;

a second reference to instance fields associated with said Java  
object; and

10 wherein said first reference is a direct reference to said internal class  
representation of said Java object.

2. A Java object representation as recited in claim 1,

15 wherein said second reference is a reference to an array of  
references, and

wherein each reference in said array of references is a reference to  
an instance field associated with said Java object.

20 3. A Java object representation as recited in claim 1, wherein said first  
reference is allocated as four bytes.

4. A Java object representation as recited in claim 1, wherein said  
second reference is allocated as four bytes.

25 5. A Java object representation as recited in claim 1,  
wherein said internal class representation includes a header of a  
predetermined size, and

wherein a method table associated with said Java object is allocated immediately after said header.

6. A Java object representation as recited in claim 1, wherein said Java  
5 object representation further comprises:

a hash key that can be used to identify the Java object.

7. A Java object representation as recited in claim 6, wherein said hash key is the memory address of said first reference.

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8. A method for representing a Java object in a virtual machine, said method comprising:

allocating a first reference in a memory portion of said virtual machine, wherein said first reference is a reference to an internal class representation of said Java object;

allocating a second reference in a memory portion of said virtual machine, wherein said second reference is a reference to instance fields associated with said Java object; and

20 wherein said first reference is a direct reference to said internal class representation of said Java object.

9. A method as recited in claim 8,

wherein said second reference is a reference to an array of references, and

25 wherein each reference in said array of references is a reference to an instance field associated with said Java object.

10. A method as recited in claim 9, wherein said first reference is  
allocated as four bytes.

11. A method as recited in claim 9, wherein said second reference is  
5 allocated as four bytes.

12. A method as recited in claim 9,  
wherein said internal class representation includes a header of a  
predetermined size, and  
10 wherein a method table associated with said Java object is allocated  
immediately after said header.

13. A method as recited in claim 9, wherein Java object representation  
further comprises:  
15 storing a hash key that represents the object.

14. A method as recited in claim 9, wherein said hash key is the memory  
address of said first reference.

20 15. A method of accessing information regarding a Java object, said  
method comprising:  
identifying an object representation associated with said Java object;  
using a first reference in said object representation to locate an  
appropriate internal class representation associated with said Java object;  
25 accessing information regarding said Java object from said internal  
class representation; and  
wherein said object is represented in a Java virtual machine.

16. A method as recited in claim 15, wherein said method further comprises:

5 skipping a header of said internal class representation to access a method table associated with said Java object.

17. A method as recited in claim 15, wherein said information regarding said Java object includes a field descriptor table.

10 18. A computer readable media including computer program code for a Java object representation suitable for use by a Java virtual machine, said computer readable media comprising:

computer program code for a first reference to an internal class representation of said Java object;

15 computer program code for a second reference to instance fields associated with said Java object; and

wherein said first reference is a direct reference to said internal class representation of said Java object.

20 19. A computer readable media as recited in claim 18,

wherein said second reference is a reference to an array of references, and

wherein each reference in said array of references is a reference to an instance field associated with said Java object.

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20. A computer readable media as recited in claim 18, wherein said computer readable media further comprises:

computer program code for a hash key for the Java object.